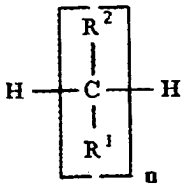
AMENDED CLAIMS

[Received by the International Bureau on 01 December 2003 (01.12.03) original claims1,2, 5,6,19,28,29,36,39,41,48,49 and 56 amended; remaining claims unchanged]

1. A composition comprising a chemical complex comprising:

i) a fatty acid ester in the form of a monoester or in the form of a diester of formula I or isomers thereof,



I

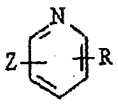
wherein n is 1, 2, 3, 4, 5 or 6;

each R^1 and R^2 is independently selected from the group consisting of H, OH, OM, OR', O-CO-R', optionally substituted straight-chain or branched C_1-C_6 alkyl and optionally substituted straight-chain or branched C_2-C_6 alkenyl,

wherein R' is selected from the group consisting of optionally substituted C_6-C_{20} alkyl and optionally substituted C_6-C_{20} alkenyl, and wherein M is an alkali metal;

provided that at least one of R^1 and R^2 is a group -O-CO-R' or -OR'; and

ii) a pyridine derivative of formula II or a salt thereof,



II

wherein R is one substituent selected from the group consisting of $-C(=X)R_b''$ and $-CH(R_b'')XH$;

wherein X is O or S,

R_a'' is selected from the group consisting of H, OH, OR''', NH_2, NHR''', NR'''R'''', CH_2COOH, O^-Y^+ and halogen,

R_b'' is selected from the group consisting of H and CH_2COOH,

wherein R''' and R'''' are independently selected from H, OH, , optionally substituted C_1-C_{20} straight-chain, branched or cyclic alkyl, optionally containing one or more multiple bonds, and aryl,and wherein Y^+ is a cation selected from optionally substituted mono-, di-, tri- or tetraalkylammonium ions, ammonium ion, and alkali metal ions,;

Z is present 0, 1, 2, 3, or 4 times and selected from the group consisting of hydrogen, halogen, NH_2, methyl, OR''' or -SH.

2. A composition comprising a fatty mono-ester or di-ester of formula I and isomers thereof and a pyridine derivative of formula II or a salt thereof,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a'' R_b''X, R''', R'''' and Z are as defined in claim 1.

3. The composition according to claim 1, wherein R' is selected from unsubstituted straight-chain or branched C_6-C_{14} alkyl and C_{14}-C_{20} alkenyl.

4. The composition according to any one of the preceding claims, wherein n is 1, 2 or 3.

5. The composition according to any one of the preceding claims, wherein at least one of R_1 and R_2 is OH.

6. The composition according to any one of the preceding claims, wherein at most two of R_1 and R_2 is O-CO-R'.

7. The composition according to any one of the preceding claims, wherein O-CO-R' is an acyloxy moiety derived from an acid, HO-CO-R', selected from the group consisting of caproic acid, caprylic acid , capric acid, lauric acid, myristic acid, myristoleic acid, palmitic acid, palmitoleic acid, linoleic acid, α-linolenic acid or γ-linolenic acid, ricinoleic acid.

8. The composition according to any one of the preceding claims, wherein O-CO-R' is an acyloxy moiety derived from an acid, HO-CO-R', selected from the group consisting of all-*cis*-5,8,11,14,17-eicosapentaenoic acid and docosahexaenoic acids (DHA).

9. The composition according to any one of the preceding claims, wherein the fatty acid ester is derived from propylene glycol, glycerol, 1,3-butylene glycol, 2,3-butylene glycol or sorbitol.

10. The composition according to any one of the preceding claims, wherein the pyridine derivative is a pyridine-3-carboxy derivative, i. e. R is located at the 3-position.

11. The composition according to any one of the preceding claims, wherein each R''' and R'''' is independently selected from the group consisting of optionally substituted C_1-C_{10} alkyl and optionally substituted C_2-C_{10} alkenyl.

12. The composition according to any one of the preceding claims, wherein R_3'' is OR''', NH2, NHR''' or NR'''R'''' wherein R''' and R'''' are independently selected from the group consisting of optionally substituted C_1-C_6 alkyl and optionally substituted C_2-C_6 alkenyl.

13. The composition according to claim 9, wherein R''' is selected from optionally substituted C_1-C_4 alkyl and optionally substituted C_1-C_4 alkenyl.

14. The composition according to any one of the preceding claims, wherein the pyridine derivative is selected from the group consisting of niacinamide, thioniacinamide, 6-aminoniacinamide, N^2-methylniacinamide, N^2-ethylniacinamide, nicotinic acid, 6-methoxy-niacinamide and salts thereof.

15. The composition according to any one of claims 1 to 13, wherein the pyridine derivative is in the form of a prodrug selected from inosital hexaniacinate.

16. The composition according to any one of the preceding claims, wherein the pyridine derivative is selected from the group consisting of niacinamide, thioniacinamide, 6-aminoniacinamide, N^2-methylniacinamide, N^2-ethylniacinamide and salts thereof.

17. The composition according to any one of the preceding claims, wherein the pyridine derivative is niacinamide.

18. The composition according to any one of the preceding claims, wherein the components defined by the formulae I and II are present in a molar ratio of between about 1:10000 to 10000:1, preferably about 1:1000 to 1000:1, more preferably of about 1:100 to 100:1, even more preferably of about 1:10 to 10:1, most preferably of about 1:5 to 5:1 or about 1:2 to 2:1.

19. The composition according to any one of the preceding claims, comprising racemic, enantiomerically enriched or enantiomerically pure 1-glyceryl-monocaprylate and niacinamide.

20. A composition according to any one of claims 1, 3 to 18, further comprising one or more excipient(s) or carrier(s) for formulation of a pharmaceutical, a dietary supplement or a cosmetic.

21. The composition according to any one of claims 2 to 18, further comprising one or more excipient(s) or carrier(s) for formulation of a pharmaceutical, a dietary supplement or a cosmetic.

22. The composition according to any one of claims 20 or 21 further comprising one or more therapeutically active agents.

23. The composition according to any one of claims 20 to 22 formulated as a pharmaceutical for oral, topical, transdermal, or parenteral administration.

24. Use of a composition as defined in any one of claims 1 to 20 as a dietary supplement.

25. Use of a composition as defined in any one of claims 1 to 20 as a cosmetic.

26. Use of a composition as defined in any one of claims 1 to 20 for the cosmetic treatment of conditions selected from the group consisting of acne, acne prone skin, irritated skin, dry skin, skin redness, scaly or flaking skin, sunburn.

27. Use of a composition as defined in any one of claims 1 to 20 as an antiseptic agent, disinfectant, bacteriostatic agent, bactericidal agent, protective agent, and/or regenerating agent.

28. Use of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II for the preparation of a medicament for the treatment of infections or diseases associated with infections selected from the group consisting of microbial infections, viral infections, infections caused by parasites, infections caused by fungi in a mammal,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a" R_b"X, R"', R"" and Z are as defined in claim 1.

29. Use of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II for the preparation of a medicament for the treatment of viral infections or diseases associated with viral infections in a mammal,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a" R_b"X, R"', R"" and Z are as defined in claim 1.

30. The use according to claim 29, for the treatment, alleviation or prevention of infection with virus or a disease associated with infection with virus selected from the group consisting of herpesviruses, adenoviruses, papovaviruses, parvoviruses, picornaviruses, reoviruses, togaviruses, bunyaviruses, orthomyxoviruses, paramyxoviruses, rhabdoviruses, retroviruses, arenaviruses, poxviruses, hepadnaviruses, calicivirus, flaviviruses, coronaviruses, filoviruses and orthomyxoviruses.

31. The use according to claim 29, for the treatment, alleviation or prevention of infection with virus or a disease associated with infection with virus selected from the group consisting of rhinovirus, influenzavirus, hepatitisvirus, herpesvirus and cytomegalovirus.

32. The use according to claim 31, for the treatment, alleviation or prevention of common cold or influenza.

33. The use according to claim 31 for the treatment, alleviation or prevention of viral pharyngitis.

34. The use according to claim 31 for the treatment, alleviation or prevention of viral pneumonia in an individual.

35. The use according to claim 31 for the treatment, alleviation or prevention of viral hepatitis in an individual.

36. Use of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II for the preparation of a medicament for the treatment of bacterial infections or diseases associated with bacterial infections in a mammal,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a", R_b"X, R"', R"" and Z are as defined in claim 1.

37. The use according to claim 36, for the treatment, alleviation or prevention of infection with gram positive bacteria or a disease associated with infection with gram positive bacteria selected from the group consisting of Baccillus subtilis, Brevibacterium ammoniagenes, Corynebacterium minutissimum, Enterococcus faecalis, Enterococcus faecalis, Micrococcus luteus, Mycobacterium phlei, Mycobacterium ranae, Staphylococcus aureus, Staphylococcus epidermidis, Streptococcus faecalis, Streptococcus mutans and Streptococcus pneumoniae.

38. The use according to claim 36, for the treatment, alleviation or prevention of infection with gram positive bacteria or a disease associated with infection with gram negative or anaerobe bacteria selected from the group consisting of Enterobacter cloacae, Escherichia coli, Escherichia coli, Klebsiella pneumoniae, Proteus vulgaris, Pseudomonas aeruginosa, Salmonella typhimurium, Serratia marcescens, Actinomyces viscosus, Bacteroides fragilis, Clostridium sporogenes, Corynebacterium acnes and Helicobacter pylori.

39. Use of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II for the preparation of a medicament for the treatment of fungal infections or diseases associated with fungal infections in a mammal,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a'' R_b''X, R''', R'''' and Z are as defined in claim 1.

40. The use according to claim 39, for the treatment, alleviation or prevention of infection with fungi or a disease associated with infection with fungi selected from the group consisting of Aspergillus fumigatus, Candida albicans, Candida glabrata, Crytococcus neoformans, Epidermophyton floccosum, Exophiala jeanselmei, Microsporum canis, Microsporum gypseum, Trichophyton mentagrophytes, Trichophyton rubrum, Aspergillus niger, Cladosporium argillaceum, Mucor hiemalis, Mucor pusillus, Paeciliomyces variotl, Penicillum chrysogenum, Penicillum citrinum, Pityrosporum ovale, Rhizopus nigricans and Saccharomyces cerevisiae.

41. Use of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II for the preparation of a medicament for the treatment of a disease and disorder associated with hypersensitivity and/or inflammatory reactions,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a'', R_b''X, R''', R'''' and Z are as defined in claim 1.

42. The use according to claim 41, wherein said disease and disorder is selected from the group consisting of hypersensitivity skin disease, pruritus, urticaria, atopic eczema, contact dermatitis, seborrhoeic dermatitis, acne, rosacea, alopecia, vitiligo, psoriasis IgE mediated allergic reactions, asthma, allergic rhinitis, anaphylaxis, autoimmune disease, chronic inflammatory disease, Crohn's disease, ulcerative colitis, rheumatoid arthritis, gout, osteoarthritis, inflammation associated with pain and inflammation associated with cancer.

43. The use according to any one of claims 28 to 42, wherein the medicament comprises a composition as defined in any one of claims 1 to 23.

44. The use according to any one of claims 28 to 43, wherein the fatty acid ester and the pyridine carboxy derivative are together comprised in a single formulation or are each individually comprised in separate formulations.

45. The use according to any one of claims 28 to 44, wherein the fatty acid ester and pyridine carboxy derivative is administered by means of oral, topical, transdermal, or parenteral administration, or combinations thereof.

46. The use according to any one of claims 28 to 45, wherein the medicament further comprises one or more therapeutically active agents.

47. The use according to claim 44, wherein the separate formulations are administered in a simultaneous or non-simultaneous manner.

48. A method for the treatment of infections or diseases associated with infections selected from the group consisting of microbial infections, viral infections, infections caused by parasites, infections caused by fungi in a mammal, including a human, comprising the administration to said mammal an effective amount of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a" R_b"X, R"', R"" and Z are as defined in claim 1.

49. A method for the treatment of viral infections or diseases associated with viral infections in a mammal, including a human, comprising the administration to said mammal an effective amount of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a", R_b"X, R"', R"" and Z are as defined in claim 1.

50. The method according to claim 49, for the treatment, alleviation or prevention of infection with virus or a disease associated with infection with virus selected from the group consisting of herpesviruses, adenoviruses, papovaviruses, parvoviruses, picornaviruses, reoviruses, togaviruses, bunyaviruses, orthomyxoviruses, paramyxoviruses, rhabdoviruses, retroviruses, arenaviruses, poxviruses, hepadnaviruses, caliciviruses, flaviviruses, coronaviruses, filoviruses and orthomyxoviruses.

51. The use according to claim 49, for the treatment, alleviation or prevention of infection with virus or a disease associated with infection with virus selected from the group consisting of rhinovirus, influenzavirus, hepatitisvirus, herpesvirus and cytomegalovirus.

52. The use according to claim 49, for the treatment, alleviation or prevention of common cold or influenza.

53. The use according to claim 49 for the treatment, alleviation or prevention of viral pharyngitis.

54. The use according to claim 49 for the treatment, alleviation or prevention of viral pneumonia in an individual.

55. The use according to claim 49 for the treatment, alleviation or prevention of viral hepatitis in an individual.

56. A method for the treatment of a disease and disorder associated with hypersensitivity and/or inflammatory reactions, including a human, comprising the administration to said mammal an effective amount of a combination of a fatty mono-ester or di-ester of formula I and a pyridine carboxy derivative of formula II,

wherein formula I, n, R^1 , R^2, R' M, formula II, R, R_a" R_b"X, R"', R"" and Z are as defined in claim 1.

57. The method according to claim 56, wherein said disease and disorder is selected from the group consisting of hypersensitivity skin disease, pruritus, urticaria, atopic eczema, contact dermatitis, seborrhoeic dermatitis, acne, rosacea, alopecia, vitiligo, psoriasis IgE mediated allergic reactions, asthma, allergic rhinitis, anaphylaxis, autoimmune disease, chronic inflammatory disease, Crohn's disease, ulcerative colitis, rheumatoid arthritis, gout, osteoarthritis, inflammation associated with pain and inflammation associated with cancer.

58. The method according to any one of claims 48 to 57, wherein the medicament comprises a composition as defined in any one of claims 1 to 23.

59. The method according to any one of claims 48 to 58, wherein the fatty acid ester and the pyridine carboxy derivative are together comprised in a single formulation or are each individually comprised in separate formulations.

60. The method according to any one of claims 48 to 59, wherein the fatty acid ester and pyridine carboxy derivative is administered by means of oral, topical, transdermal, or parenteral administration, or combinations thereof.

61. The method according to any one of claims 48 to 60, wherein the medicament further comprises one or more therapeutically active agents.

62. The method according to claim 59, wherein the separate formulations are administered in a simultaneous or non-simultaneous manner.